

REMARKS

Claims 1-11, 19-17, 28, 29-31 and 36-42 are pending. Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,658,185 ("Morgan III") in view of U.S. Patent No. 4,141,180 ("Gill Jr. '180"). Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan III in view of Gill Jr. '180 and further in view of U.S. Patent No. 5,649,854 ("Gill Jr. '854"). Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Claims 8-11 would be allowable if rewritten to overcome rejections under 35 U.S.C. § 112, second paragraph, and to include all the limitations of the base claim. Claims 19-26 and 28 would be allowable if rewritten to overcome the rejections under 35 U.S.C. § 112, second paragraph. Claims 29-31, 36 and 37 are allowed. Claims 1, 8, 11, 19, 21, 24 and 28 have been amended. Claims 38-42 are new. The applicant respectfully traverses the rejections, and requests reconsideration and reexamination in view of the following remarks and amendments.

The applicant would like to clarify the pendency of claim 28. The Examiner's Restriction Requirement, mailed May 22, 2001, grouped the claims into two groups, one of which included claims 1-11, 19-26, 28, 29-31, 36 and 37. The applicant's Response to Restriction Requirement, filed December 11, 2001, elected this group of claims, but inadvertently did not list claim 28 as belonging to the group, although it was intended to be elected and was a member of the group of claims. The applicant notes that on the Office Action Summary for the present office action, the Examiner includes claim 28 in the list of claims that were withdrawn from consideration. However, the applicant also notes that the Examiner has included claim 28 in the office action, and provided grounds for its rejection. The applicant would like to clarify that claim 28 was not withdrawn from consideration, was intended to be elected under the Response to Restriction Requirement, and remains pending in this application.

I. The § 112 Rejections

Claims 8, 11, 19, 21, 24 and 28 have been amended to overcome the Examiner's rejections under § 112, second paragraph, and are now in condition for allowance.

Claim 11 has been amended to include the word "selected" before the words "polishing surface". The phrase "selected polishing surface" has an antecedent basis in claim 1, from which claim 11 depends.

II. The § 103(a) Rejections

Claims 1-3

The Examiner rejected claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over Morgan III in view of Gill Jr. '180. Claim 1 recites a polishing apparatus including a rotatable support member, at least two polishing surfaces, and at least one substrate head assembly. The rotatable support member is rotatable about a first axis and the at least two polishing surfaces are arranged at respective angular positions about the first axis. The at least one substrate head assembly is supported on the support member. The substrate head assembly is capable of supporting thereon a substrate in contact with a selected one of the polishing surfaces and affording relative linear and reciprocal movement between the selected polishing surface and the substrate head assembly while the substrate supported on the substrate head assembly is engaged with the selected polishing surface. Additionally, the at least one substrate head assembly is linearly and reciprocally movable in the support member.

The applicant respectfully submits that each of the elements of claim 1, as amended, are not disclosed by Morgan in view of Gill Jr. '180. In particular, neither reference discloses a substrate head assembly that is linearly and reciprocally movable in the support member to afford relative linear and reciprocal movement between the selected polishing surface and the substrate head assembly. Referring to Morgan III's Figure 1, the substrate head assembly (element 11) does not appear to be movable within the member supporting it (element 14), and is thus not linearly and reciprocally movable *in the support member*, as recited in claim 1. Gill Jr. '180 fails to disclose relative linear movement between a polishing surface and a substrate head assembly, nor a substrate head assembly that is linearly and reciprocally movable within a support member.

Accordingly, the applicant submits a *prima facie* case of obviousness has not been established and claim 1 is in condition for allowance. Claims 2-3 depend from claim 1 and are allowable for at least the same reasons.

Claims 4-5

The Examiner rejected claims 4 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Morgan III in view of Gill Jr. '180 and further in view of Gill Jr. '854. Claims 4 and 5 depend from claim 1. As discussed above, neither Morgan III nor Gill Jr. '180 disclose the elements recited in the base claim, that is, claim 1. The additional reference cited, Gill Jr. '854, also fails to disclose relative linear movement between a polishing surface and a substrate head assembly, nor a substrate head assembly that is linearly and reciprocally movable within a support member. Accordingly, a *prima facie* case of obviousness has not been established, and claims 4 and 5 are in condition for allowance.

III. Allowable Subject Matter

Claims 6-7

Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. In view of the amendments to the base claim 1, the applicant submits that claims 6 and 7 are in condition for allowance.

Claims 8-11

Claims 8-11 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, second paragraph, and to include all of the limitations of the base claim and any intervening claims. Claims 8 and 11 have been amended to overcome the § 112 objections. In view of the amendments to the base claim 1, the applicant submits claims 8-11 are in condition for allowance.

Claims 19-26 and 28

Claims 19, 21 and 28 have been amended to overcome the rejection under § 112, second paragraph, and are now in condition for allowance. Claims 20 and 22-26 depend from claim 19, and are therefore also in condition for allowance.

IV. New Claims

Claim 38 recites a polishing apparatus including a support member rotatable about a first axis, at least two polishing surfaces arranged at respective angular positions about said first axis, and at least one substrate head assembly supported on said support member.

The substrate head assembly has a central axis substantially parallel to but offset from the first axis and is capable of supporting thereon a substrate in contact with a selected one of the polishing surfaces. Further, the substrate head assembly is linearly and reciprocally movable in the support member along a radii of the support member passing through the first axis, thereby affording relative linear movement between the selected polishing surface and the substrate head assembly while the substrate supported on the substrate head assembly is engaged with the selected polishing surface.

As discussed above in reference to claims 1 and 4, neither of the references cited disclose a substrate head assembly linearly and reciprocally movable in a support member, thereby affording relative linear movement between the selected polishing surface and the substrate head assembly, while the substrate supported on the substrate head assembly is engaged with a selected polishing surface. Accordingly, claim 38 is in condition for allowance. Claims 39-42 depend from claim 38 and are therefore allowable for at least the same reasons.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be allowed.

Enclosed is a \$110.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to Deposit Account No. 06-1050.

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Respectfully submitted,

Date: Sep 9/02

B. Leeds Binder
Brenda Leeds Binder
Limited Recognition under 37 CFR § 10.9(b)

Fish & Richardson P.C.
500 Arguello Street, Suite 500
Redwood City, California 94063
Telephone: (650) 839-5070
Facsimile: (650) 839-5071

Version with markings to show changes made

In the claims:

Claims 1, 8, 11, 19, 21, 24 and 28 have been amended as follows:

1. (Amended Twice) A polishing apparatus, comprising:
a rotatable support member rotatable about a first axis;
at least two polishing surfaces arranged at respective angular positions about said first axis;
at least one substrate head assembly supported on said rotatable support member and capable of supporting thereon a substrate in contact with a selected one of said polishing surfaces and affording relative linear and reciprocal movement between said selected polishing surface and said substrate head assembly while said substrate supported on said substrate head assembly is engaged with said selected polishing surface;
wherein said at least one substrate head assembly is linearly and reciprocally movable in said rotatable support member.
8. (Amended) The polishing apparatus of Claim 7, wherein said substrate head assemblies are slidably mounted in respective linear slots formed in said rotatable support member, and further comprising:
at least two lead screws independently rotated by respective ones of said motors; and
threaded members mounted to respective ones of said substrate head assemblies and threadably and rotatably receiving respective ones of said lead screws.
11. (Amended) The polishing apparatus of Claim 10, wherein each of said head assemblies includes a vertically movable substrate head providing sufficient vertical movement to engage and disengage a substrate held thereon from said selected polishing surface.
19. (Amended Twice) A polishing apparatus, comprising:
a support member rotatable about a first axis;

at least two polishing surfaces arranged about said first axis;
at least two substrate head assemblies each capable of supporting thereon at least one substrate in contact with a selected one of said polishing surfaces and each being supported on said [carousel]support member, reciprocal movement being provided between said substrate head and said selected polishing [surfaces]surface during engagement of said substrate with said selected polishing surface.

21. (Amended Twice) The polishing apparatus of Claim 28, further comprising at least two motors mounted on said support member and coupled to respective ones of said substrate head assemblies to move them linearly and reciprocally in said [carousel]support member.

24. (Amended) The polishing apparatus of Claim 23, wherein each of said substrate head assemblies is capable of rotating about a head axis of said substrate head assembly, said head axis being substantially parallel to said first axis.

28. (Amended) The polishing apparatus of Claim 19, wherein said substrate head assemblies are capable of linear and reciprocal motion with respect to said [carousel]support member.



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Expires: August 6, 2003

Harry I. Moatz
Director of Enrollment and Discipline

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